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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,274	05/08/2001	Hiroshi Kubota	5576-125	3436

20792 7590 01/22/2003

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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

98

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,274

Applicant(s)

KUBOTA ET AL.

Examiner

Sin J Lee

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1752

DETAILED ACTION

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

2. Claims 1-4 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al (6,159,656) (with Chen et al (6,174,661 B1) which is cited here to support the Examiner's position that "Florad FC430" and "FC431" are fluorinated alkyl esters).

Kawabe teaches a chemical amplification type positive resist composition suitable for exposure to far UV rays (220 nm or shorter wavelength) which comprises a *polymer*, a *solvent*, and at least one of a fluorine type surfactant and a silicone type surfactant (in Kawabe's

Art Unit: 1752

Examples 1 and 2, "Megafac F176" (a fluorine type surfactant) is used). See col.3, lines 37-65, col.45, lines 55-56, and Table 1 in col.49-50. Kawabe also teaches (col.44, lines 64-67) that a nonionic surfactant can be further added for the purpose of improving the applicability of each photosensitive resin composition of his invention or improving developability. Therefore, based on this teaching, one of ordinary skill in the art would immediately envisage adding a nonionic surfactant to Kawabe's resist composition in order to improve the applicability of the photoresist composition and improve developability. None of the examples which Kawabe lists in col.45, lines 1-7 for his nonionic surfactant includes any fluorine substituent or a silicon-containing substituent.

With respect to present limitation as to the amount of the non-ionic surfactant (10-2000 ppm), Kawabe does not explicitly disclose the presently claimed amount. However, since Kawabe teaches that the nonionic surfactant is being added for the purpose of improving the applicability of the photoresist composition and improving developability, it is the Examiner's position that the present range for the amount of the non-ionic surfactant would have been obvious to one skilled in the art because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, the prior art's teaching would render obvious present inventions of claims 1, 3, 17.

Art Unit: 1752

With respect to present claims 2, 4, and 18, Kawabe teaches (col.45, lines 1-7) only eight examples to choose from for his nonionic surfactant. Among those eight, polyoxyethylene lauryl ether and polyoxyethylene stearyl ether are presently claimed *polyoxyalkylene alkyl ethers*, and polyoxyethylene otylphenyl ether and polyoxyethylene nonylphenyl ether are presently claimed *polyoxyalkylene aralkyl ethers*. Since there are only eight examples to choose from, it is the Examiner's position that one of ordinary skill in the art would immediately envisage using any one of polyoxyethylene lauryl ether, polyoxyethylene stearyl ether, polyoxyethylene otylphenyl ether, and polyoxyethylene nonylphenyl ether as Kawabe's nonionic surfactant. Therefore, the prior art's teaching would render obvious present inventions of claims 2, 4, and 18.

Kawabe teaches (col.45, lines 51-58) that his photosensitive resin composition is applied on a substrate, and the coating film is subjected to pre-bake and then exposed to an exposure light having a wavelength of 220 nm or shorter through a given mask. The exposed film is subjected to post-exposure bake and then developed to obtain a satisfactory resist pattern. Therefore, Kawabe's teaching would render obvious present inventions of claims 13-16.

With respect to present claims 9 and 19, Kawabe uses Megafac F176 (fluorine type surfactant) in his Examples 1 and 2, and the prior art teaches equivalence of this surfactant to Florad FC430 and FC431 in col.43, lines 46-56. Since the prior art teaches equivalence of these compounds, it is the Examiner's position that it would have been obvious to one of ordinary skill in the art to use Florad FC430 or FC431 in place of the Megafac F176 in Kawabe's Examples 1

Art Unit: 1752

and 2 with a reasonable expectation of achieving a positive photosensitive resin composition which shows excellent performances with respect to the residual film ratio, resist profile, resolution, and dry-etching resistance. Florad FC430 and FC431 are fluorinated alkyl esters as evidenced by Chen et al, col.7, lines 22-23. Therefore, Kawabe's teaching would render obvious present invention of claim 9.

With respect to present claim 10, Kawabe teaches that his fluorine type and/or silicon type surfactant is present preferably from 0.01 to 1 part by weight per 100 parts by weight of the composition of his invention (0.01-1 wt%). Since present range of 10 to 2,000 ppm converts to 0.001-0.2%, the prior art's range overlaps with present range and thus would render the present range *prima facie* obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a *prima facie* case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, the prior art's teaching would render obvious present invention of claim 10.

With respect to present claims 11, 12, and 20, Kawabe does not explicitly disclose the weight ratio of the non-ionic surfactant to the fluorine surfactant (although the prior art teaches the amount for the fluorine surfactant). However, since Kawabe teaches that the nonionic surfactant is being added for the purpose of improving the applicability of the photoresist composition and improving developability, it is the Examiner's position that the present range for

Art Unit: 1752

the weight ratio would have been obvious to one skilled in the art since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See In re Boesch, supra. Therefore, Kawabe's teaching would render obvious present inventions of claims 11, 12, and 20.

3. Applicants argue that Kawabe et al does not propose a resist material comprising between 10 and 2000 ppm of a non-ionic surfactant as recited in claims 1 and 13. However, as already addressed above in Paragraph 2, since Kawabe teaches that the nonionic surfactant is being added for the purpose of improving the applicability of the photoresist composition and improving developability, it is the Examiner's position that the present range for the amount of the non-ionic surfactant would have been obvious to one skilled in the art because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See In.re Boesch, supra. Therefore, the prior art's teaching would render obvious present inventions of claims 1-4 and 9-20.

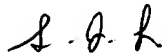
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (703) 305-0504. The examiner can normally be reached on Monday-Friday from 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Janet Baxter, can be reached on (703) 308-2303. The fax phone number for the

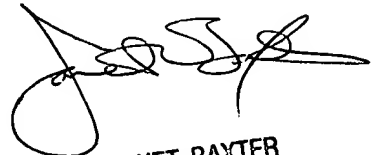
Art Unit: 1752

organization where this application or proceeding is assigned is (703) 872-9311 for after final responses or (703) 872-9310 for before final responses.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.



S. Lee
January 16, 2003



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